Statement of

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Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the Administration's fiscal year (FY) 2016 budget request for the U.S. Geological Survey (USGS), and in particular, for the Water Mission Area.

Water is essential for life. As elected officials, resource managers, and the public balance competing demands on water for agricultural irrigation, drinking water, energy production, and other needs, scientific data and information are required to provide a solid foundation to inform policy and personal decisions. And, when a natural hazard such as a flood or drought strikes, science enables emergency responders to determine life-saving measures.

For 136 years, the USGS has earned a sterling reputation for providing objective, reliable scientific results and technical excellence. The USGS is the primary Federal science agency for water information. The USGS monitors and assesses the amount and characteristics of the Nation's freshwater resources, assesses the sources and behavior of contaminants in water, develops tools to improve management and understanding of water resources, and provides information about the water level and flow of rivers and streams. This information is especially critical during floods to get people out of harm's way and during droughts when managers must decide on complex tradeoffs among water uses.

The overall FY 2016 budget request for the USGS is $1.2 billion, an increase of 14.3 percent from the 2015 enacted level. This budget represents a balanced focus on monitoring, research, and assessments while maintaining the diverse expertise necessary to respond to evolving societal needs.

Meeting Water Challenges in the 21st Century

For the USGS Water Mission Area in particular, the FY 2016 budget request is $222.9 million, an increase of $11.6 million, or more than five percent above the 2015 enacted level. This request supports science investments to promote the understanding of freshwater availability and use; enhance groundwater monitoring; support a national streamflow information program; and continue monitoring and assessing the quality of the Nation's water, including the outcomes of the investments the Nation is making in water-quality improvements.

In FY 2016, the USGS will restructure the Water Mission Area budget by consolidating seven existing programs into four programs. The goal is to better address important water resource issues, such as drought, in a more transparent and efficient way.

Although the organizational structure will be different under this model, the quality of our science will not be impacted. The most significant and positive effect will be our ability to provide policymakers, our many partners, and the public with a much clearer sense of how our funding serves the Nation's water needs.

The USGS FY 2015 budget features seven budget subactivities for the Water Resources Mission Area: Groundwater Resources; National Water Quality Assessment; National Streamflow Information Program; Hydrologic Research and Development; Hydrologic Networks and Analysis; Cooperative Water Program; and Water Resources Research Act Program. In FY 2016, we will feature four budget subactivities: Water Availability and Use Science Program; Groundwater and Streamflow Information Program; National Water Quality Program; and Water Resources Research Act Program.

Meeting the Nation's water resources needs poses increasing challenges for resource managers. As competition for water resources grows, so does the need for information and tools to aid decision makers. The FY 2016 budget provides increased funding across several USGS mission areas to support resource managers in understanding and managing competing demands related to water availability and quality and to enable adaptive management of watersheds to support the resilience of the communities and ecosystems that depend on them. USGS water-related highlights include a $3.2 million increase for science to understand and respond to drought, a $4 million increase for water use information and research, a $2.5 million increase to study ecological water flows, a $1.3 million increase for streamflow information, a $1.0 million increase to advance the National Groundwater Monitoring Network, and $500,000 in grant matching funds to strengthen technical information needed to support Indian water rights settlement work.

I will touch on our new subactivities to elaborate on more examples of USGS water science at work in supporting the national economy, reducing risk from natural hazards, and providing a solid scientific foundation for decisionmakers.

Water Availability and Use Science Program

In 2016, the Water Availability and Use Science Program requests funding at $46.8 million, an increase of $5.9 million from the 2015 enacted level. This request supports the WaterSMART initiative with a focus on streamflow information, drought, national hydrologic modeling, and water use information and research.

The Water Availability and Use Science Program will encompass the Water Resources Mission Area's objectives to provide comprehensive water availability and use science to the Nation. This program also fulfills the goal stated in the SECURE Water Act (P.L. 111-11), Section 9508, to establish a "national water availability and use assessment program."

When it comes to water availability, you cannot manage what you do not measure. We need to have a modern, consistent way to communicate water information and data. Recently, the USGS issued a report, *Progress Toward Establishing a National Assessment of Water Availability and Use,* which fulfilled a Congressional requirement for the Secretary of the Interior to report on progress made in implementing the national water availability and use assessment program, also referred to as the National Water Census. Growing populations, increased energy development, and the uncertain effects of a changing climate magnify the need for an improved understanding of water use and water availability. However, no comprehensive and current national assessment of water resources exists.

Through the combined efforts of the Bureau of Reclamation and the USGS, the WaterSMART initiative provides the foundation for a sustainable water strategy for the Nation. The primary focus of this initiative includes developing a National Water Census, improving our understanding of water availability versus demand, and supporting sustainable and environmentally sound water management. Leveraging expertise and resources across multiple USGS mission areas enables a broader focus to address these challenging issues in a time of growing competition for water resources.

The Water Census will quantify water supply and demand consistently across the entire country, fill in gaps in existing data, and make that information available to all who need it. Funding is requested to continue to provide grants to State Water Resource Agencies to improve their ability to provide the basic data at the necessary resolution for effective decisionmaking. In addition, funding would allow the USGS to participate in a new, multi-agency Open Water Data Initiative to compile water information that is now fragmented among multiple bureaus into a national water data framework on a geospatial platform.

The Open Water Data Initiative's goal is to make the process of sharing water data easier and automated. This is not about data collection. It is about making water data discoverable and readily accessible. We realized that to achieve our priority of building the next generation of water forecasting tools, we need to be able to access up-to-date

data in an automated way. This concept started a few years ago when the USGS, the U.S. Army Corps of Engineers, and National Oceanic and Atmospheric Administration's National Weather Service began a formal collaboration called Integrated Water Resources Science and Services (IWRSS) to develop new approaches for improving their respective water missions.

As part of this Initiative, the USGS launched an interactive California Drought visualization website last December[1] to provide the public with atlas-like, statewide coverage of the drought and a timeline of its impacts on water resources. The application "compiles data from a variety of open sources and presents this valuable water data in a more user friendly, easily accessible, and understandable format.

Groundwater and Streamflow Information Program

In 2016, the Groundwater and Streamflow Information Program requests funding at $73.5 million, an increase of $3.8 million from the 2015 enacted level. This request supports streamflow information and groundwater monitoring requirements in the SECURE Water Act, the expanded use of streamgages in improving disaster response, and strengthening technical information needed to support water rights settlement work.

The Groundwater and Streamflow Information Program will also encompass the Water Mission Area's objectives to collect, manage, and disseminate hydrologic information in real time, over the long- term, and in a consistent manner. This is done to minimize loss of life and property from water hazards and to protect, manage, and sustain water that is safe and available for drinking and for other competing water demands. Short-term water decisions are needed for flood forecasting, emergency response, reservoir releases, water-use restrictions, drinking water supplies, and recreation. Long-term decisions are needed for water-supply planning, infrastructure design, water quality protection and enhancement, floodplain and ecosystem management, energy development, resolving interstate, international, and tribal water disputes, and aquifer storage and recovery.

The Groundwater and Streamflow Information Program will also consolidate the USGS streamgaging network, National Groundwater Monitoring Network, flood inundation mapping, and storm surge monitoring. The Program will also be responsible for the support of information management functions that are critical to the dissemination of groundwater and streamflow observational data, and for the support of research to enhance monitoring activities. Additionally, consistent, long-term, high-quality streamflow information is essential for design of water infrastructure such as dams, irrigation systems, water and wastewater-treatment plants, culverts and bridges; the establishment of jurisdictional floodplains; and the regulation of water quality.

[1] http://cida.usgs.gov/ca_drought/

Groundwater is the primary source of drinking water for approximately half of the Nation's population, provides about 40 percent of the irrigation water necessary for the Nation's agriculture, sustains the flow of most streams and rivers, and helps maintain a variety of aquatic ecosystems. Continued availability of groundwater is essential for the economic health of our Nation. The USGS provides objective scientific information to assess and quantify availability and sustainability of the Nation's groundwater resources. The results of those efforts are used in decision making by resource managers, regulators, other government agencies, and individuals in the public and private sectors. The USGS is the only Federal agency that monitors the status of the Nation's groundwater quality and reports on how these conditions are changing over time from natural and/or human sources, as well as how groundwater quality will respond to changes in climate, land use, and water use over time.
Streamgages are a vital national resource, important to everything from estimating streamflow, providing real-time surface-water quality and quantity to tracking wastewater treatment plant releases, and to sounding the alarm when floods or droughts are occurring. The USGS's primary focus remains stabilizing the Nation's streamgaging network.

The USGS is requesting additional funding to increase the number of streamgages and provide for much needed rapid response/portable gages and improve drought monitoring capabilities. The USGS measures water levels at more than more than 8,130 streamgages nationwide; those data are converted to streamflow information by sophisticated software and provided via the web to the public. Streamflow information is one of the most requested types of water information served on the web, averaging over 35 million requests per month.

Given the persistent drought in multiple regions of the United States, the USGS proposes to quantify streamflow for all areas of the country, make precipitation data readily available, and determine groundwater availability under drought conditions.

Additionally, in 2016, the Groundwater and Streamflow Information Program is requesting an increase to build upon a 2015 investment to strengthen technical information needed to support water rights settlement work. Monitoring, assessments, and research would continue and expand work related to water availability issues on Tribal lands in order to address such topics as water rights, water use, hydrologic conditions, and water-quality issues. Funding would be allocated in coordination with the Secretary's Indian Water Rights Office and other bureaus that support the Federal trust responsibility for water in Indian country.

Moreover, decisions made every day by Federal, State, and local managers affect the quantity, quality, and timing of water flows required to sustain freshwater and marshland environments and the human livelihoods and well-being that depend on these ecosystems. Funding is requested to develop Decision Support Systems that have the capacity to provide a diverse set of management options—both monetary and non-monetary—to water regulators and stakeholders for making decisions that balance human and ecosystem needs. These management decisions include maintenance of

important species, minimizing adverse impacts and vulnerabilities in floodplains or flood-prone areas, and protecting and restoring the functions of natural systems.

National Water Quality Program

In 2016, the National Water Quality Program requests funding at $96.1 million, an increase of $2.0 million from the 2015 enacted level. This increase will support a focus on research in ecosystem priorities such as Puget Sound and the Upper Mississippi Basin; groundwater and surface water quality and availability associated with unconventional oil and gas extraction; and the Federal Urban Waters partnership.

This program will include the core water-quality monitoring, assessment, and research of the National Stream Quality Accounting Network, the Hydrologic Benchmark Network, National Monitoring Network for U.S. Coastal Waters and Tributaries, National Atmospheric Deposition Network, Urban Waters, Cooperative Water Program, Hydrologic Research and Development Program, and the Hydrologic Networks and Analysis Program.

Information from the National Water Quality program is issued to help protect and improve water quality for human and ecosystem needs. National Water Quality program data, water-quality models, and scientific studies will characterize where, when, why, and how the Nation's water quality has changed, or is likely to change in the future, in response to human activities and natural factors.

The 2016 proposed funding increase will also help the National Water Quality Program address priority aspects of the strategic science plan endorsed by the National Research Council and stakeholders such as the Advisory Committee on Water Information. Specifically, the increase will be used to build an expanded and sustainable national network where monitoring approaches will emphasize rapid feedback on changing water-quality conditions so that managers can identify emerging problems; develop capability to provide annual Web-based reporting of the concentrations, loads, and trends of nutrients, sediment, and other contaminants in rivers flowing into important coastal estuaries; and develop forecasting and scenario-testing tools that will enable timely evaluation of current water-quality issues as well as the possible effects of future scenarios of changing climate, land use, and management practices by stakeholders.

Water Resources Research Act (WRRA) Program

In 2016, the WRRA Program requests funding at $6.5 million, which is the same as the 2015 enacted level.

In 1964, the WRRA established a Water Resources Research Institute in every State and Puerto Rico. Subsequent amendments to the 1964 act broadened the list of National Institutes for Water Resources (NIWR) so that, by 1983, there were 54

Institutes, one in each State, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam.

The Water Resources Research Institute Program originally authorized by the WRRA is a Federal-State partnership that provides for competitive grants to be awarded for research projects focusing on the State and region. Each of the 54 Institutes is charged with overseeing research that addresses water problems or expands the understanding of water and water-related phenomena. The Institutes are also responsible for aiding the entry of new research scientists into water resources fields, helping to train future water scientists and engineers, and transferring the results of sponsored research to water managers and the public. The Water Resources Research Institutes, in partnership with the USGS, have produced path-breaking research, developed innovative information and technology transfer programs, and provided training to more than 25,000 students in their 50-year history.

The WRRA Program provides an institutional mechanism for promoting State, tribal, regional, and national coordination of water resources research, training, and information and technology transfer. With its matching requirements, the program is also a key mechanism for promoting State investments in research and training. In 2014 and 2015, the WRRA Program is developing more-rigorous oversight to ensure that Federal investments at each of the Institutes effectively and consistently maximize national science goals and leverage all available resources, particularly in the areas of water availability, quality, and climate change. In 2016, the Water Mission Area will work through the WRRA Program to ensure that activities funded by this Program are more closely aligned with the priority actions, goals, and objectives outlined in the USGS Water Mission Area Science Strategy.

Conclusion

The USGS provides impartial scientific information to enable the public, resource managers, emergency responders, and policymakers to make informed decisions on the basis of sound information. The USGS FY 2016 budget request represents a balanced focus on monitoring, research, and assessments while maintaining the diverse expertise necessary to respond to evolving societal needs. It reflects careful and tough decisions, made within a fiscally constrained environment, to prioritize science investments that support a resilient and robust economy, while also protecting the health and environment of the Nation and its people.

This concludes my statement, Mr. Chairman. I will be happy to answer the questions you and other Members may have regarding the 2016 budget proposal for the USGS Water Mission Area.